

1 78. (new) The apparatus of claim 62, wherein:  
2 the network is an infrastructure which is generic in that it  
3 can accommodate any such system that can issue an error message  
4 and handle a recovery command.

#### REMARKS

THE USE OF "SUBSTANTIALLY COMMERCIAL, OFF-THE-SHELF" — Applicant thanks the Examiner for having withdrawn, in the Official Action, the "first set of rejections under 35 USC § 112, second paragraph". As to the second set, the Applicant reiterates that a detailed analysis of the language "substantially commercial, off-the-shelf" is necessarily for determination by a finder of fact in litigation, based upon all the circumstances — as is traditionally done — and should not stand in the way of allowance.

The reason for that urged allocation of fact finding is that the good faith of a defendant accused infringer turns on the detailed physical reasons for his deviation from literal "COTS" condition. If the deviation is only a cynical intention to make an inconsequential modification, so as to "get around" the claim

language, then the fact of a "substantial COTS" condition should not be found, and the defendant should be held liable.

Contrariwise, if the deviation is based, e. g., upon true, technologically motivated intent to make a product of very high quality, then "substantially COTS" conditions may be present and the defendant should be exonerated. It is believed to be fundamentally impossible to determine such issues in the abstract during prosecution of a patent application, and for that reason to preserve the issue for the judicial fact-finders by inclusion of the term "substantially" before "commercial, off-the-shelf". Caselaw on this topic has been presented in a previous amendment.

In the interest of advancing this case toward issue, however, the Applicant has removed the term "substantially" — without prejudice — from the above-cited claim language, in every occurrence. Applicant therefore respectfully requests allowance of all the claims subject to the corresponding rejection.

PHONE INTERVIEWS, AND EXAMINER'S INTERVIEW SUMMARY — Applicant wishes to thank Examiner Bryce P. Bonzo for the courtesy of two telephone interviews, to discuss details of the Final Rejection and then of the Advisory Action. Remarks follow immediately below concerning six details of these discussions.

"SUBSTANTIALLY" — First, Applicant particularly thanks the Examiner for having confirmed in the interviews that the § 112 ¶ 2 rejections extended only to the claim phrase "substantially commercial, off-the-shelf" — not to "substantially exclusively".

The Applicant accordingly has amended the subject claims to eliminate the former phrase, without prejudice to subsequent re-

introduction of the original language. As claims 19, 24, 27, 32 through 41, 54, 61, 64 and 65 had been rejected on this ground only, the Applicant believes that with this amendment these seventeen claims are now in condition for allowance, and asks that they be allowed.

"SUCH" — Second, the Applicant submits that in the interviews the discussion centered very extensively about the Applicant's special use of the term "such" as expressly defined in the Applicant's specification — well within the Applicant's well-known right to be "his own lexicographer". In particular it was pointed out and discussed at length that this usage is specifically and explicitly for the very purpose of distinguishing elements of the claimed combination from features of the context of environment in which that claimed combination operates.

In view of this very extensive and indeed predominant thrust of the first interview, with Dr. Avizienis present, Applicant is sincerely disappointed that the Examiner Interview Summary did not confirm this understanding. The Applicant regrets that the considerable passage of time evidently led to loss of this very essential understanding.

As shown by patient discussion from both sides, during the interviews, this explicit separation of claimed-combination elements from context elements makes the "duplicate claim" assertion in the Official Action unsupportable. The result is to render the § 112 ¶ 4 "duplicate claim" rejections (at page 4 of the Action) utterly untenable.

Furthermore, still based upon this crucial and extended part of the interviews, the same discussions rendered completely clear the already-present claim recitations about distinctness between

the guarded "computer system" and the guarding "network circuits" of claim 1 as well as several other claims.

Thus the discussions about the word "such", in the interviews, were quite pivotal to this case. Applicant respectfully requests specific confirmation of these essential points. The Applicant recites — but, contrary to the Office Action (section IV, page 19) does not ever "claim" the computer system in the body of the claims. Exceptions to this statement are of course those claims which expressly incorporate the computer system into the claimed combination — particularly claims 4, 16, 36, 47, 63 and 66.

Applicant respectfully believes that the foregoing comments fully deal with section IV (page 19) of the Official Action, apart from one important point. The solution proposed by the Action in the last sentence of that section IV not only would be wholly unnecessary (since the rejections appear to be without authority as explained above), but also would cost the Applicant several hundred dollars in government fees alone.

"CIRCUIT BREAKER" — Third, in the interviews (although also not mentioned in the Examiner Interview Summary) the Examiner asserted that claim 1 would be anticipated by a circuit breaker. The Applicant wishes to point out that there is no such anticipation, since the claim recites that the apparatus is (emphasis added) "for deterring failure of a computing system" and comprises "circuits . . . for guarding such system from failure".

The Applicant's specification, at page 4, expressly defines "fail" (and thus "failure") in these words:

"The purpose of a computer system is to deliver information processing services according to a specification. Such a computer system is said to 'fail' when the ser-

vice that it delivers stops or when it becomes incorrect, that is, it deviates from the specified service."

Although there may be electronic circuit breakers, it will be apparent that operation of a circuit breaker cannot satisfy this definition. A circuit breaker disconnects power to protect the wiring and walls of a building, and furniture in the building, against overheating.

In that event, if the breaker has any effect at all upon the computing system, that effect is of course to shut off power to the computer system. The system then in fact stops.

Interruption of power such as performed by a circuit breaker, accordingly, in no way prevents the stopping of the service specified for the computing system. To the contrary, such circuit-breaker operation virtually ensures computing-system failure that is both total and protracted.

This can hardly be characterized as deterring or guarding the computing system against failure. Accordingly a circuit breaker in no way can meet the plain language of the Applicant's claim. Therefore the Applicant respectfully asks that the Examiner refrain from asserting this proposed rejection on the record.

FIRMWARE — Fourth, it is said in the Advisory Action that the Examiner considers firmware to be "permitted" under the claim-1 limitation "substantially no software". In the second interview, however, the Applicant's undersigned representative proposed that this philosophy could be obviated by an explicit exclusion, in the claim language, for firmware.

The Examiner responded that such an explicit claim recitation "could be okay" — but the Interview Summary omits to mention this essential part of the discussion. The Applicant's

present amendment presents just such a recitation, based upon express language in the specification at pages 8 and 9.

The Examiner will recall the reason, stated in the second telephone interview, for that second, follow-up phone call from the undersigned to the Examiner. It is earnestly hoped that this situation will be duly weighed, when considering the Applicant's reasoning as set forth here.

IDENTIFICATION OF § 112 REJECTIONS MAINTAINED — Fifth, in the Advisory Action (Examiner's Interview Summary) it is also said that the parties to the interview:

"discussed the needs and merits of the language which results in 35 USC § 112 rejections. While the Examiner understands Applicant's intent for the language, the Examiner feels the rejection is proper."

The Applicant very respectfully submits that this response is impermissibly vague and indefinite. The Advisory Action does not identify (1) which "needs and merits" — or (2) which language — is understood, or (3) which Section 112 rejection or rejections are sustained by the Advisory.

Undeniably, an Interview Summary need not and should not be prolix. Nevertheless, it is believed that crucial understandings elaborated in interview — and rejections or nonrejections as well — are required to be set forth with particularity.

IDENTIFICATION OF § 102 REJECTIONS MAINTAINED — Sixth, it is also said in the Examiner's Interview Summary that:

"the Examiner maintains the rejections on the current prior art. The Examiner understands Applicant's argu-

ments but feels the rejections on the currently word[ed] claims are proper when viewed in the proper breadth."

Once again the Applicant respectfully objects that this statement is impermissibly indefinite. In particular it is not made clear which art-based rejections over Rasmussen are maintained.

OFFICIAL ACTION WITH FINAL REJECTIONS — Now turning to the Final Action dated July 12, the Applicant offers the following remarks concerning the following ten details of the rejections and other passages in the Action.

CLAIMS REJECTED UNDER § 112 ¶ 2 ONLY — First, the Applicant earnestly thanks the Examiner for having apparently indicated in the Official Action that certain claims are subject to Section 112 paragraph 2 rejections only, those being claims 19, 24, 27, 32 through 41, 54, 61, 64 and 65. Applicant has amended the claims to eliminate the bases for those rejections and believes that these seventeen claims are now in condition for allowance, which is respectfully requested.

(As will be seen below, the § 112 ¶ 2 rejections of the remaining four claims 2, 3, 7 and 12 are moot in view of the Section-102-related amendments to the independent parent claim 1, presented above — considered together with the Section-112-related amendments to claims 2, 3, 7 and 12. Allowance of these four claims, too, is therefore also requested.)

CLAIMS REJECTED UNDER § 112 ¶ 4 ONLY — Second, the Applicant thanks the Examiner for having indicated in the Action that certain claims are subject to Section 112 paragraph 4 rejections

only, these being claims 16, 36, 47, 59, 63 and 66. Applicant has eliminated the Section-112 bases for those rejections and believes that these six claims are now in condition for allowance, which is respectfully requested.

(As will be seen below, the § 112 ¶ 4 rejections of the remaining two claims 4 and 26 are both moot in view of the Section-102-related amendments to the independent parent claim 1, and the cancellation of claims 25 through 32, both presented above — considered together with the Section-112-related amendments to claims 1 and 4. Allowance of both claims 1 and 4 is therefore also requested.)

CLAIMS INDICATED ALLOWABLE — Third, Applicant wishes to thank Examiner Bonzo also for having indicated that claims 50 and 51 would be allowed if suitably amended. Those claims are now presented in independent form, including all the original limitations of the parent and intervening claims, and are likewise believed to be in condition for allowance.

FINALITY OF REJECTION: IMPROPER — Fourth, it is said in the Official Action that these claims are all finally rejected over Rasmussen: 1 through 15, 17, 18, 20 through 23, 25, 26, 28 through 31, 42 through 46, 48, 49, 52, 53, 55 and 58, 60 and 62. The Applicant most respectfully points out, however, that claim 1 previously (in the preceding Action) had been rejected prematurely and erroneously over the Applicant's own publication.

That claim was rejected — even though the Applicant had plainly put the Patent Office on notice, *bona fide*, that that publication was not a citable reference. The rejection over the Applicant's publication was withdrawn in the July 12 Action. The



rejection of claim 1 was nevertheless made final in the same Action.

With all due respect, Applicant suggests that one proper course would have been to make provisional the rejection over the Applicant's own publication — pending Applicant's possible inability to prove the publication not citable. It would also have been proper then to dissolve that rejection upon receipt of the proofs involved as to the contents and effective date of the publication.

The new ground of claim 1 rejection (namely, over Rasmussen) thus was not due to any amendment by the Applicant — but rather, again with greatest respect, was due solely to Patent Office error. Therefore the finality of the present rejection is plainly unauthorized and improper.

The importance of this issue has been pointed out on the record and in the interviews. The Applicant — though a person of the highest standing and prestige in the computer field — is not a corporation but a private inventor. Finality of rejection imposes a financial burden, unwarranted under the present circumstances.

The Applicant therefore very respectfully asks that the FINALITY of the rejection be WITHDRAWN. In event this request is not honored, the Applicant provisionally files herewith an RCE, and the RCE fee. The Applicant asks, however, that the RCE be voided, and the fee credited to my deposit account 12-1639, in event the finality of the July 12 rejection be maintained.

FIRMWARE: INCONSISTENT POSITIONS — Fifth, in the Action at page 5 (paragraph 1) it is said that Rasmussen teaches the Applicant's "hardware network of components, having substantially no soft-

ware" — and when confronted with Rasmussen's recitation that his "program is stored in flash EPROM and loaded into DRAM for execution" the Examiner replied in the Advisory Action:

"[T]he Examiner believes claim 1's use of "substantially" allows the use of firmware in a system "containing 'substantially no software'."

At page 10, however, in paragraph 18 (with reference to Rasmussen's columns 7 and 8) it is confessed that the combination of EPROM and DRAM is software — pure and simple, as it would appear.

The Applicant respectfully submits that Rasmussen's programs in an alterable ROM are indeed strictly software and accordingly cannot anticipate even the original wording of Applicant's claim 1. As now expressly amended with regard to the use of "firmware", claim 1 is believed to distinguish Rasmussen *a fortiore*.

PARALLEL-CHANNEL DIVERSITY — Sixth, it is also said in the Official Action (page 7, last paragraph, relative to *e. g.* claims 9 and 38) that Rasmussen anticipates Applicant's claim recitations that "parallel channels of the computing system are of diverse design or origin". More specifically, the Action asserts that these teachings are found in Rasmussen's column 2, lines 1 through 13. Applicant, however, is not able to find any such teaching in Rasmussen.

To the contrary Rasmussen's channels seem to be of construction that is unitary, if indeed not monolithic. For example, Rasmussen's column 2, lines 2 and 3 says (emphasis added): "The controller consists of three identical channels . . . ." See

also, e. g., Rasmussen at column 9, lines 14 through 17 (emphasis added):

"The Digital (Discrete) Input Module 2a contains the circuitry for three identical channels . . . . [T]he channels reside on the same module 2 . . . ."

Likewise in the same column a similar set of statements appears at lines 41 through 43 (emphasis added):

"The DO (Digital Output module) module 2b also contains the circuitry for three identical, isolated channels 13. . . ."

Accordingly the Applicant respectfully urges that his claim limitation to "diverse design or origin" very effectively distinguishes the cited art.

MISCELLANEOUS RASMUSSEN REJECTIONS, AND DISTINCTIONS — Seventh, the first paragraph of section V (page 19) says that the subject arguments "pertain most directly to claim 1" — but Applicant had expressly said that the claims involved were 13, 42, 55 and 62.

Further, as to subsection A, Applicant did not argue that there were no terminals in the cited reference but only observed that the reference did not use that word. Among several other straw men are those mentioned in subsections C and D: Applicant has not argued absence of either C- or M-nodes.

Concerning subsection V-B in the Action: as confirmed by the Examiner in the interviews, that subsection of the Action was intended to read "does not qualify as pertinent art".

In the Official Action in sections V through IX (pages 19 through 21) it is generally argued that Rasmussen's MP and IO

modules are mutually distinct and therefore satisfy recitations of the Applicant's several claims. This is the general trend of the argument in the Action, even though the relationship between the MP and IO units is otherwise alien to the environment and thrust of the Applicant's invention.

Applicant respectfully submits that if the Rasmussen MP and IO modules are interpreted as mutually distinct, pursuant to the philosophy presented in the Official Action, then they cannot be simultaneously interpreted as having the same mutual relationship as the Applicant's "computing system" and "circuits for guarding" that system against failure (or vice versa). This inconsistency is detailed specifically in the next, "Eighth" section, below.

Once again, however, in the interest of advancing this case toward issue the Applicant has now amended the claims to even more emphatically clarify five different distinguishing features, now inserted into various of the claims respectively:

- the Applicant's infrastructure apparatus does not and cannot run any application program;
- the Applicant's inventive apparatus guards against failure of the entire computing system, not only just small pieces and bits of it;
- the Applicant's novel infrastructure receives error messages warning of incipient failure, and issues recovery commands;
- as stated in the specification, the Applicant's apparatus is generic, in the sense that it is ready for use with any computing system that can provide error messages warning of incipient failure and can handle recovery commands; and

- the Applicant's invention is in fact an infrastructure (as Rasmussen's apparatus is not) — and one which always, from manufacture, awaits error messages from a computing system.

(The Official Action, however, already implies that certain claims — namely claims 24, 32 through 36, 41, 54, 61 and 64 through 66 — would be allowable but for the 112-second-paragraph rejections.)

With further regard to claim 1, the Rasmussen patent cannot anticipate the Applicant's claim when an explicit provision is made for firmware. Once again, such a feature is believed to have been adequately emphasized in the earlier language.

In the interest of moving forward toward allowance, however, the Applicant has now revised claim 1 to even more clearly emphasize that the Applicant's novel apparatus of claim 1 has neither software nor firmware — except for firmware held in a true ROM, i. e. a ROM that is nonalterable. Rasmussen's EPROM cannot answer to this limitation, and his patent neither teaches nor suggests such a limitation.

Furthermore the fundamental purpose of Rasmussen's system is to run user-supplied software, effectively requiring an alterable memory. This basic purpose is of course antagonistic to the Applicant's claim recitation of a nonalterable read-only memory in the infrastructure — thus negating presence of any suggestion, in Rasmussen, of using such a true ROM in his system (which is not an infrastructure).

RASMUSSEN "MPs" AND "IOs": INCONSISTENT POSITIONS — Eighth, in the Official Action it is once again said that certain claims are anticipated by Rasmussen. As stated in the previous response,

however, Rasmussen discloses only a well-known "TMR" (triple modular redundant) system. Such a system contains several mutually redundant modules, which are essentially peers — i. e., are parallel in importance, authority and function.

The modules in a typical such TMR make decisions together by voting to determine whether any of the modules should be disqualified from further participation. Thus in a very general philosophical or hypothetical sense the modules may be backing up one another to deter failure of an overall system.

The word "hypothetical" has been used here and in the previous response because, when Rasmussen's modules and TMR system are first constructed, it is impossible to say that one is the protected and others the protector: they are all parallel and equal. Initially no particular one(s) of them can be identified as (1) a computing system to be protected from failure, vs. (2) a network of components to deter failure of a computing system.

Such identifications can only, at most, develop later — when perhaps one of the modules fails, and the others then step in to prevent overall system failure by turning off or disqualifying that failed module. Applicant has previously narrowed the claims to emphasize that according to his invention the protecting features are manufactured at the outset to be distinct from the protected computing system (an element of the environment of the invention).

In the present Official Action it appears that the Examiner is now somewhat shifting ground by indicating that Rasmussen's MP and IO modules are the protected and protecting elements, respectively — or conversely that the IO modules are the protected and the IO modules the protecting elements. The Examiner's explanation, in the interviews, was that the overall assemblage of IOs,

considered together as a unit, could "protect" the overall assemblage of MPs, also considered together as a unit — against such "problems" as input signals being in an inappropriate or nonideal format.

Applicant respectfully points out that such problems in general do not necessarily produce failure; they may instead simply result in returned messages requiring some particular reformatting. The present invention specifically deters failure.

Furthermore these particular rejections are believed to be impermissibly vague and indefinite, in that the Official Action does not specify which Rasmussen features are the protected elements and which are the protecting elements. Applicant wishes to emphasize that such indefiniteness is improper, since it leaves Applicant to wonder which interpretation is to be distinguished or shown inapplicable.

The Applicant notes also that the TMR claims in this application have been rejected over Rasmussen. It would not appear, however, that Rasmussen's MPs and IOs can fairly be interpreted both —

- (1) as the protected and protecting elements of Applicant's claims and also at the same time interpreted
- (2) as having the TMR relationships that are recited in the same claims. Interpretation "(1)" requires slicing Rasmussen's block diagram along vertical lines, and interpretation "(2)" requires slicing the same diagram horizontally.

Still more importantly, some of the current claim amendments aim to preclude even that strained interpretation. These amended

claims (see e. g. claims 13 and 42) explicitly recite that the claimed apparatus is distinct from, and protects, the "entire" computing system.

Others of the current amendments alternatively specify that the claimed apparatus in substance is distinct from (see e. g. claim 42) "(a) every . . . application-data input module and (b) every . . . application-program processor, and (c) all . . . parallel computing channels" in the computing system.

As noted previously, the Applicant's failure-detering "apparatus" of the questioned claims is never parallel or equal to the computing system which it protects. From their first construction, and ever after, the protective apparatus is totally distinct in structure and function from the protected computing system.

No part of Applicant's failure-detering apparatus is ever fungible or interchangeable with any part of his protected system. There is no situation in which the character of a component in Applicant's invention as either a protected or a protector component must be held in abeyance for revelation later.

CLAIM 25 — Ninth, it is said in the Official Action at page 11 that Rasmussen anticipates claim 25 because "no . . . interference is disclosed, and such interference would be contrary to the intent of the disclosure". Applicant respectfully protests that Rasmussen provides no enabling teaching of this feature.

It is improper to assume, in 20-20 hindsight, the right answer on this issue. Furthermore the Action fails to specify



which Rasmussen features are the network, and which are the circuits.

Nevertheless, in the interest of saving out some paid-for claim slots for new dependent claims in the other claim sets, the Applicant has canceled claim 25 and all its dependent claims. This cancellation is without prejudice.

COST OF CONTINUING PROSECUTION — Tenth and finally, the Applicant respectfully notes that section XI in the Official Action was evidently in response to Applicant's merely having asked for a phone call. That would have promoted, rather than impaired, a "full and complete examination".

In the interviews, Applicant's representative again requested, and repeats the request below, that the Examiner telephone the undersigned to expedite agreement as to any specific details left unresolved by this amendment — rather than instituting yet another very costly round of paper exchanges. This amendment is intended to resolve all issues known to the Applicant.

### Conclusion

In view of the foregoing amendment and remarks, Applicants respectfully request reconsideration and allowance. In addition, noting the extremely high cost of continuing prosecution of this application — not only to the Applicants but to the Government

as well — it is earnestly requested that, should there appear any obstacle to allowance of the claims herein, the Examiner telephone the undersigned attorney to try to resolve the obstacle.

Respectfully submitted,

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